OU1 DATA GAPS ASSESSMENT — Planning Memorandum

DATE: February 16, 2000

PROJECT: Omaha Shops RCRA Facility Investigation
Union Pacific Railroad Company
Omaha, Nebraska

URS Greiner Woodward Clyde has prepared this planning memorandum for the Union Pacific Railroad (UPRR) Omaha Shops, located north of downtown Omaha near 9th and Webster Streets as shown on Figure 1. Specific sampling locations are shown on Figure 2. Sampling activities described in this memorandum are planned to start in February 2000.

Purpose

The purpose of the planned sampling activities is to address data gaps identified in the Draft OU1 RFI Report, in anticipation of future development on the Omaha Shops property. The scope of planned activities is based on the findings of previous site investigations.

General Investigative Approach

Samples will be collected following the procedures described below.

1. A utility clearance will be completed at each proposed sampling location prior to the start of sampling activities.

2. Field investigation activities will be completed following procedures specified in the site specific Health and Safety Plan. The majority of the fieldwork is expected to be completed using level D personal protective equipment. The Health and Safety Plan will be modified as necessary to address the activities described in this planning memorandum.

3. The investigation approach, including sample target depths and analyses, is discussed and the soil samples to be collected are shown on Tables 1 through 5. The proposed sample location(s) for each site are shown on Figure 2. Specific sampling procedures are detailed in the Phase II Site Assessment Work Plan (WC 1992).

4. Soil samples will be collected at the specified target depth(s) using a stainless-steel split-spoon sampler or a stainless-steel hand auger.

5. Recovered soil samples will be described in the field according to the Unified Soil Classification System (USCS) by a geologist or engineer. A portion of each sample will be field screened for potential volatile organic vapors.

6. Sampling equipment will be decontaminated prior to use at each sampling location using an Alconox-hot water wash and clean water rinse.

7. Sample material will be placed in the appropriate container, labeled, packaged in a cooler with ice, and shipped to Test America (formerly NET) for chemical analysis.

8. All sampling locations will be marked/flagged for surveying.

9. Borings will be backfilled with soil cuttings.

Site 1 - West Yard Area

A 300 foot sampling grid will be staked across the site (Figure 2). Soil samples will be collected at each of the 14 grid locations. Recovered soil samples will be field screened for potential organic vapors.

Soil samples for chemical analysis will be collected from each of the borings at depth intervals of 0.0 to 1.0 foot, 2.0 to 3.5 feet, 4.5 to 6.0 feet, 7.0 to 8.5 feet, and 9.5 to 11.0 feet using a truck-mounted drilling rig and stainless-steel split-spoon samplers. The soil samples will be analyzed for volatile organic compounds (VOCs), arsenic, lead, and total extractable hydrocarbons (TEH). In addition, all 0.0 to 1.0-foot samples and half of the 2.0 to 3.5-foot samples will also be analyzed for asbestos.

Additional soil samples may be submitted for laboratory analysis if highly contaminated zones (as determined visually and by field screening) are encountered. The planned analytical methods are listed in Table 1. Sample containers, minimum sample size, preservation method, and maximum holding times are listed in Table 6.

Site 2 - East Abbott Drive Area

Four soil sampling locations will be staked across the site. The sampling locations will be laid out to cover the area. Soil samples will be collected at each of the four locations (Figure 2).

Soil samples for chemical analysis will be collected from each of the borings at depth intervals of 0.0 to 1.0 foot, 4.5 to 6.0 feet, and 9.0 to 10.5 feet using a truck-mounted drilling rig and stainless-steel split-spoon samplers. The soil samples will be analyzed for VOCs, arsenic, lead, and TEH. In addition, the 0.0 to 1.0 foot samples will also be analyzed for asbestos.

Additional soil samples may be submitted for laboratory analysis if highly contaminated zones (as determined visually and by field screening) are encountered. The planned analytical methods are listed in Table 2. Sample containers, minimum sample size, preservation method, and maximum holding times are listed in Table 6.

Site 3 - Eighth Street Yard

Soil samples will be collected at 9 locations across the Eighth Street Yard as shown on Figure 5. Due to the active use of this site, sampling activities will be coordinated with UPRR and may require the use of a flagman.

Soil samples will be collected from 1.0 to 1.5 feet, 2.0 to 2.5 feet, 3.0 to 3.5 feet, 4.0 to 4.5 feet, 7 to 8.5 feet, and 9.5 to 11.0 feet at each location using a truck-mounted drilling rig and stainless-steel split-spoon samplers. Soil samples will be analyzed for arsenic and lead. Depending on the total lead results, samples may be requested for Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitate Leaching Procedure (SPLP) analysis.

Additional soil samples may be submitted for laboratory analysis if highly contaminated zones (as determined visually and by field screening) are encountered. The planned analytical methods are listed in Table 3. Sample containers, minimum sample size, preservation method, and maximum holding times are listed in Table 6.

Site 4 - New Coal Track

Soil samples will be collected at 8 locations along the new coal track alignment as shown on Figure 2. The sample locations will be spaced about 300 feet apart.

Soil samples will be collected from 0.0 to 1.0 foot, 1.0 to 2.0 feet, and 2.0 to 3.0 feet at each location using a truck-mounted drilling rig and stainless-steel split-spoon samplers. The samples will be analyzed for arsenic and lead. Depending on the total lead results, samples may be requested for TCLP and SPLP analysis.

Additional soil samples may be submitted for laboratory analysis if highly contaminated zones (as determined visually) are encountered. The planned analytical methods are listed in Table 4. Sample containers, minimum sample size, preservation method, and maximum holding times are listed in Table 6.

Site 5 - South Yard Area

A 300-foot sampling grid will be staked across the site. Soil samples will be collected at each of the 6 grid locations (Figure 2).

Soil samples for chemical analysis will be collected from each of the borings at depth intervals of 0.0 to 1.0 foot, 4.5 to 6.0 feet, and 9.0 to 10.5 feet using a truck-mounted drilling rig and stainless-steel split-spoon samplers. The soil samples will be analyzed for VOCs, arsenic, lead, and TEH. In addition, the 0.0 to 1.0-foot samples will also be analyzed for asbestos.

Additional soil samples may be submitted for laboratory analysis if highly contaminated zones (as determined visually and by field screening) are encountered. The planned analytical methods are listed in Table 5. Sample containers, minimum sample size, preservation method, and maximum holding times are listed in Table 6.

TABLE 1

WEST YARD SOIL SAMPLING BREAKDOWN
UPRR OMAHA SHOPS

ANALYTICAL METHOD	PARAMETER	NO. OF FIELD SAMPLES	NO. OF FIELD REPLICATES	NO. OF MS/MSD SAMPLES	TRIP BLANK	TOTAL NO. OF SAMPLES
8260	VOCs	42	4	1/1	NA	48
6010/7000	Total Metals[1]	70	7	1/NA	NA	78
OA-2	TEH	42	4	NA/NA	NA	46
600	Asbestos	21	2	NA/NA	NA	23

Notes: [1]Total metals include the analysis of lead (6010) and arsenic (7060).
NA = Not Applicable

TABLE 2

EAST ABBOTT DRIVE SOIL SAMPLING BREAKDOWN
UPRR OMAHA SHOPS

ANALYTICAL METHOD	PARAMETER	NO. OF FIELD SAMPLES	NO. OF FIELD REPLICATES	NO. OF MS/MSD SAMPLES	TRIP BLANK	TOTAL NO. OF SAMPLES
8260	VOCs	12	1	1/1	NA	15
6010/7000	Total Metals[1]	12	1	1/NA	NA	14
OA-2	TEH	12	1	NA/NA	NA	13
600	Asbestos	4	0	NA/NA	NA	4

Notes: [1]Total metals include the analysis of lead (6010) and arsenic (7060).
NA = Not Applicable

TABLE 3

EIGHTH STREET YARD SOIL SAMPLING BREAKDOWN
UPRR OMAHA SHOPS

ANALYTICAL METHOD	PARAMETER	NO. OF FIELD SAMPLES	NO. OF FIELD REPLICATES	NO. OF MS/MSD SAMPLES	TRIP BLANK	TOTAL NO. OF SAMPLES
6010/7000	Total Metals[1]	40	4	1/NA	NA	45

Notes: [1]Total metals include the analysis of lead (6010) and arsenic (7060).
NA = Not Applicable

TABLE 4

NEW COAL TRACK SOIL SAMPLING BREAKDOWN
UPRR OMAHA SHOPS

ANALYTICAL METHOD	PARAMETER	NO. OF FIELD SAMPLES	NO. OF FIELD REPLICATES	NO. OF MS/MSD SAMPLES	TRIP BLANK	TOTAL NO. OF SAMPLES
6010/7000	Total Metals[1]	24	2	1/NA	NA	27

Notes: [1]Total metals include the analysis of lead (6010) and arsenic (7060).
NA = Not Applicable

TABLE 5

SOUTH YARD AREA SOIL SAMPLING BREAKDOWN
UPRR OMAHA SHOPS

ANALYTICAL METHOD	PARAMETER	NO. OF FIELD SAMPLES	NO. OF FIELD REPLICATES	NO. OF MS/MSD SAMPLES	TRIP BLANK	TOTAL NO. OF SAMPLES
8260	VOCs	18	2	1/1	NA	22
6010/7000	Total Metals[1]	18	2	1/NA	NA	21
OA-2	TEH	18	2	NA/NA	NA	20
600	Asbestos	6	1	NA/NA	NA	7

Notes: [1]Total metals include the analysis of lead (6010) and arsenic (7060).
NA = Not Applicable

TABLE 6

SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES UPRR OMAHA SHOPS FACILITY

ANALYTICAL METHOD	PARAMETER	CONTAINERS PER SAMPLE	MINIMUM SAMPLE SIZE	PRESERVATION	HOLDING TIME
8260	VOCs	Two 4-oz VOA vials with Teflon-lined septa	10 grams	4° C	14 days
OA-2	TEH	One 16-oz widemouth glass jar with Teflon-lined septa	30 grams	4° C	28 days
6010	Total Metals[1]	One 16-oz widemouth glass jar with Teflon-lined septa	10 grams	4° C	6 months 28 days Hg
1311	TCLP Metals	One 16-oz widemouth glass jar with Teflon-lined septa[2]	40 grams	4° C	See Above
1312	SPLP Metals	One 16-oz widemouth glass jar with Teflon-lined septa[2]	40 grams	4° C	See Above

Notes: [1]Total metals include analysis of lead (6010) and arsenic (7060).

[2]No additional sample volume required if completing analysis of total metals.

NEBRASKA

QUADRANGLE LOCATION

BASE MAP SOURCE: USGS 7.5 MINUTE SERIES (TOPOGRAPHIC) QUADRANGLE MAP OF OMAHA NORTH, NE.-IA., 1994.

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2000 1000 0 2000

SCALE IN FEET

December 15, 1999 2:46:26 p.m.
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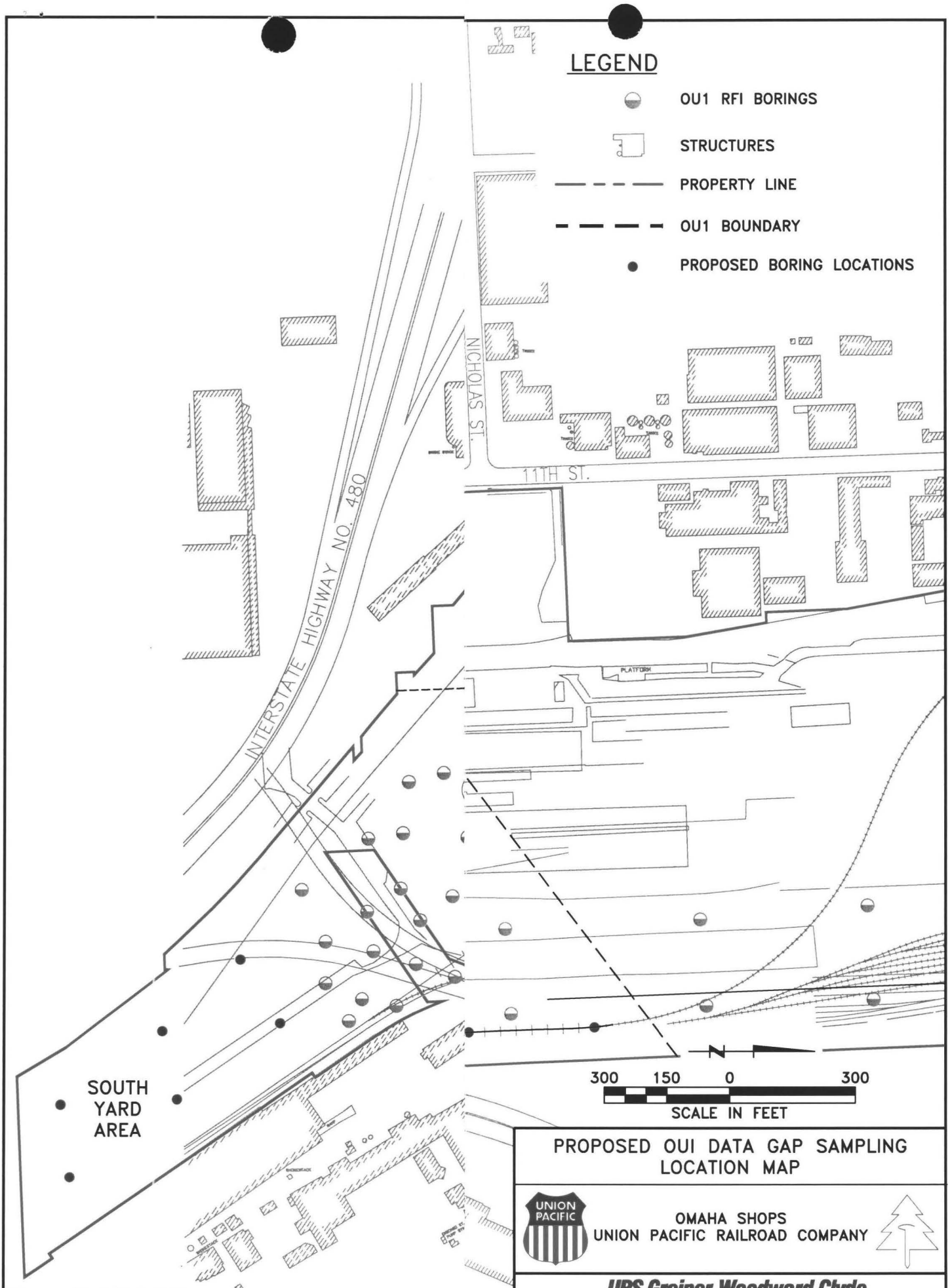
OMAHA SHOPS LOCATION

UNION PACIFIC

OMAHA SHOPS
UNION PACIFIC RAILROAD COMPANY

URS Greiner Woodward Clyde

DRN BY DAP	DATE 12/15/99	PROJECT NO.	FIG. NO.
CHK'D BY .	REVISION .	45-091MC204.04	1



PROPOSED OU1 DATA GAP SAMPLING LOCATION MAP

OMAHA SHOPS
UNION PACIFIC RAILROAD COMPANY

URS Greiner Woodward Clyde

DRN BY	TSSM	DATE	10/07/99	PROJECT NO.	FIG. NO.
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Xrefs: DRILLHOLES.DWG uprrpropline.DWG

DATA GAPS ASSESSMENT
OPERABLE UNIT NO. 1

UNION PACIFIC RAILROAD
OMAHA SHOPS

Union Pacific Railroad Company
1416 Dodge Street
Omaha, Nebraska 68179

CERTIFICATION

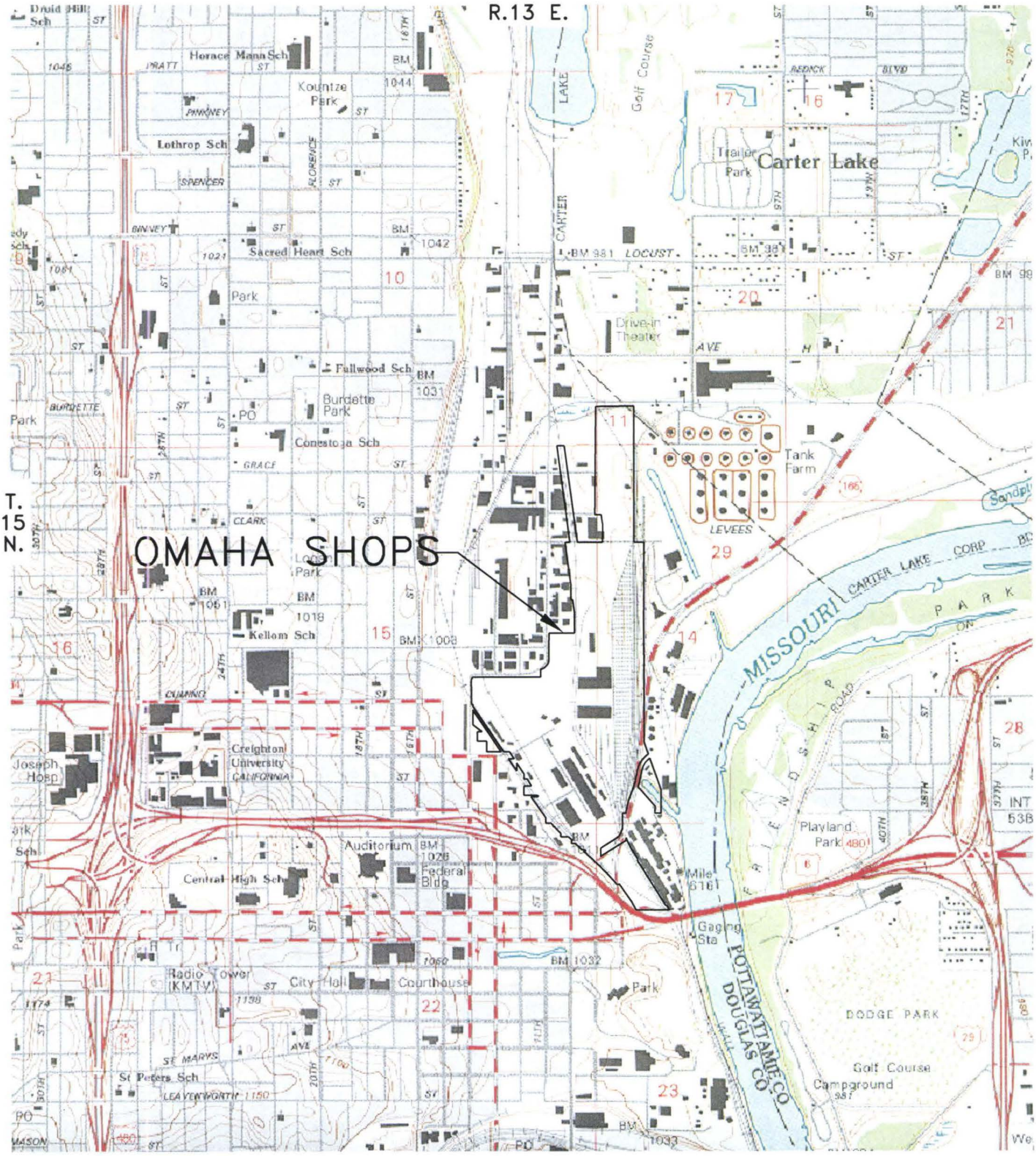
"I certify that this document and all attachments hereto were prepared under my direction or supervision. To the best of my knowledge, information and belief, the information submitted is true, accurate and complete. I am aware that there are criminal penalties for knowingly providing false information."

Signature: Jeffrey D. McDermott

Name: Jeffrey D. McDermott

Title: Mgr. Environmental Site Remediation

Date: 2-22-2000



NEBRASKA

QUADRANGLE LOCATION

BASE MAP SOURCE: USGS 7.5 MINUTE SERIES (TOPOGRAPHIC) QUADRANGLE MAP OF OMAHA NORTH, NE.-IA., 1994.

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SCALE IN FEET

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OMAHA SHOPS LOCATION

UNION PACIFIC

OMAHA SHOPS
UNION PACIFIC RAILROAD COMPANY

URS Greiner Woodward Clyde

DRN BY DAP	DATE 12/15/99	PROJECT NO. 45-091MC204.04	FIG. NO. 1
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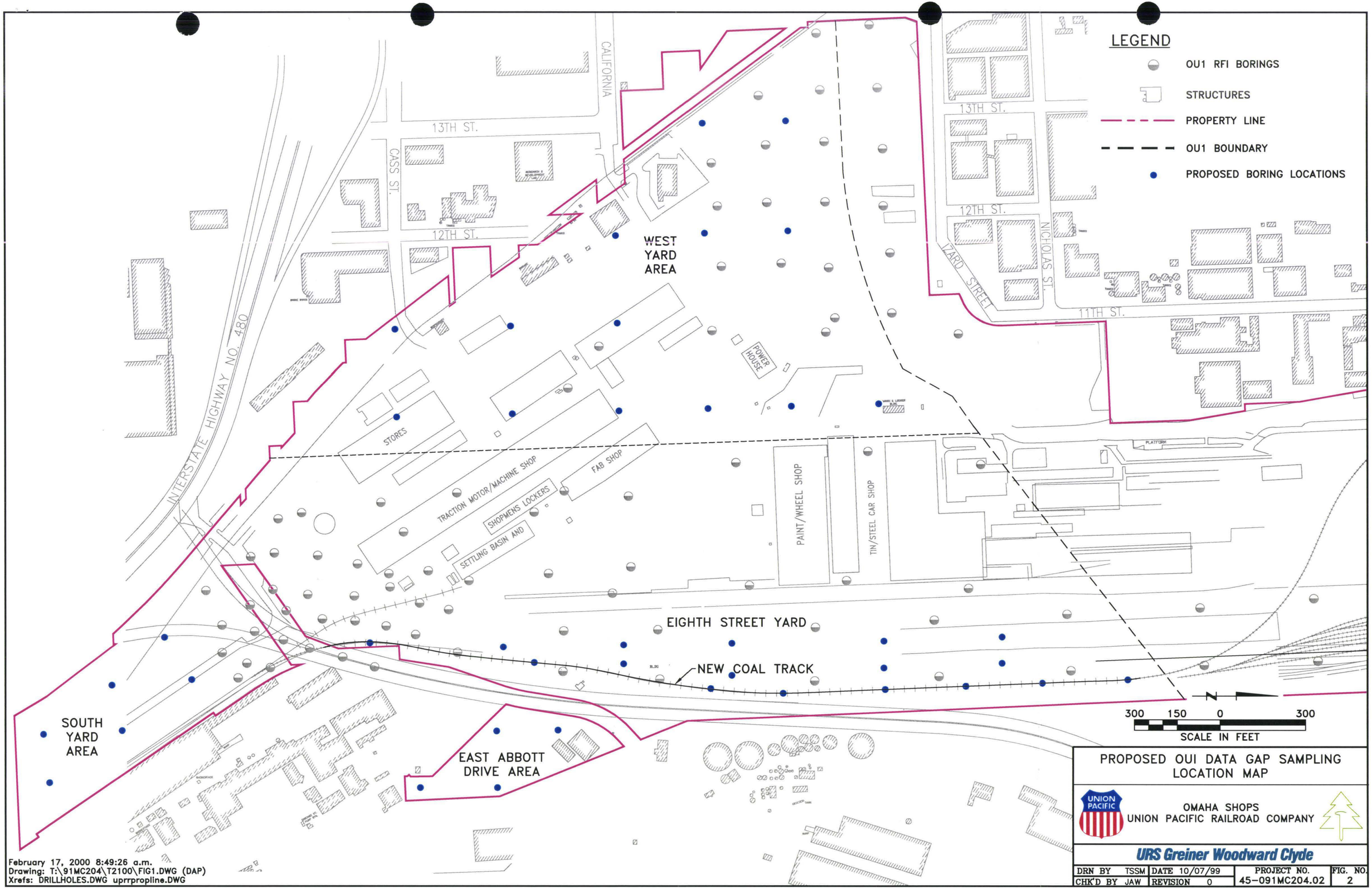

PROPOSED OUI DATA GAP SAMPLING LOCATION MAP

OMAHA SHOPS
UNION PACIFIC RAILROAD COMPANY

URS Greiner Woodward Clyde

DRN BY TSSM	DATE 10/07/99	PROJECT NO.	FIG. NO.
CHK'D BY JAW	REVISION 0	45-091MC204.02	2

February 17, 2000 8:49:26 a.m.
Drawing: T:\91MC204\T2100\FIG1.DWG (DAP)
Xrefs: DRILLHOLES.DWG uprrpropline.DWG